

ADDITIONAL NOTES ON THE GENUS VERBENA. XXVII

Harold N. Moldenke

VERBENA SUPINA L.

Emended synonymy: Verbena supina ♂ hirsuta Ehrenb. ex Sweet, Hort. Brit., ed. 2, 419. 1830.

Additional & emended bibliography: H. Bock [Tragus], Stirp. Max. Germ. 102 & 211. 1552; Dodoens [L'Ecluse], Hist. Pl. 96 & 97. 1557; L., Hort. Cliff., imp. 1, 11. 1737; Strand in L., Amoen. Acad. 69: 449. 1756; R. A. Salisb., Prodr. 71. 1796; Sweet, Hort. Brit., ed. 1, 1: 325 (1826) and ed. 2, 419. 1830; G. Don in Loud., Hort. Brit., ed. 1, 247 (1830) and ed. 2, 247. 1832; Loud., Hort. Brit., ed. 2, 553. 1832; G. Don in Loud., Hort. Brit., ed. 3, 247. 1839; Sweet, Hort. Brit., ed. 3, 553. 1839; Schnitzlein, Iconogr. Fam. Nat. 2: 137 Verbenac. [3] & 137, fig. 4—22. 1856; Buek, Gen. Spec. Syn. Candoll. 3: 495 & 496. 1858; Strobl, Oesterr. Bot. Zeitschr. 33: 406. 1883; Dur. & Barr., Fl. Lib. Prodr. 193. 1910; Rolland, Fl. Populaire 8: 43. 1910; L., Hort. Cliff., imp. 2, 11. 1968; Bolkh., Grif, Matvej., & Zakhar., Chrom. Numb. Flow. Pl., imp. 1, 717. 1969; Scully, Treas. Am. Ind. Herbs 283. 1970; Bolkh., Grif, Matvej., & Zakhar., Chrom. Numb. Flow. Pl., imp. 2, 717. 1974; El-Gazzar, Egypt. Journ. Bot. 17: 75 & 78. 1974; Gilmour, Thom. Johnson 122. 1972; Täckholm, Stud. Fl. Egypt, ed. 2, [453], 454, 817, 830, & 876, pl. 156, fig. A. 1974; Kooiman, Act. Bot. Neerl. 24: 464. 1975; Moldenke, Phytologia 30: 159 & 191 (1975), 34: 268 (1976), and 36: 36, 40, 250, & 277. 1977.

Additional illustrations: Scully, Treas. Am. Ind. Herbs 283. 1970; Täckholm, Stud. Fl. Egypt, ed. 2, pl. 156, fig. A. 1974.

Linnaeus (1737) says of this species "Crescit in agro Salmanticensi". Rolland (1910) records the following additional vernacular names: "chamaedrys" ("par confusion, chez les apothicaires"), "columba supina", "licinia", "verbenaca supinaca", and "verveine basse". Don (1830) calls it the "supine vervain" and says that it was introduced into English gardens from Spain in 1640. Loudon (1832) calls it the "trailing vervain"; the var. hirsuta he calls "hairy vervain" and says that it was introduced from Egypt in 1829.

Täckholm (1974) comments that in Egypt "Sterile specimens" of this plant are "very similar to Ambrosia maritima in general appearance.

Scully (1970) reproduces what is obviously a pre-linnean herbal illustration of V. supina in her discussion of Amerind uses of V. hastata L. and V. stricta Vent., but fails to label it or state that it could not possibly have been involved in any Amerind usage since it does not occur in the New World.

It should also be recorded here that the Verbena supina mas of Dodoens is actually Veronica chamaedrys L. in the Scrophulariaceae.

The figure given by Schnitzlein (1856), previously cited as representing V. supina (as it is labeled), seems, rather, to be V. officinalis. Similarly, Bock (1552), although using the name, Verberna foemina, in his text, illustrates it with a woodcut which very obviously depicts V. officinalis.

The Sibthorpe & Smith (1809) reference is often dated "1806", but actually pages 219—442 of volume 1 were not issued until 1809.

Some specimens of V. supina (e.g., Sieber s.n. at Munich and Herb. Zuccarini s.n. [Hort. bot. Erlangensis circa 1819]) have leaves greatly resembling those of the North American V. bracteata Lag. & Rodr. Rauh 156 & 603 and Fischer s.n. [Argyptus] represent very much stunted plants with very small, deeply dissected, canescent leaves. It is very possible that this species consists of several more or less distinct forms which may be deserving of nomenclatural recognition, like the forms and varieties of V. officinalis. Ehrenberg's var. hirsuta, from the deserts of northern Africa, may well be one of these. Much more study in the field is required to determine these matters. The Kunkel 10256, cited below, may represent f. erecta Moldenke, a form which is very difficult to be sure of from herbarium specimens alone.

The corollas are said to have been "pinkish-blue" on Kunkel 10256 when fresh.

The Kotschy s.n. [Aegyptus inferior], distributed as V. supina, is not verbenaceous — probably represents something in the Scrophulariaceae.

Additional citations: MACARONESIA: Gran Canaria: Kunkel 10256 (Mu). EIRE: Wiest 90 (Mu—384, Mu—388). FRANCE: Herb. Kummer s.n. (Mu—1270). SPAIN: Reverchon 81 (Mu). HUNGARY: Borbás 934 (Mu), s.n. [28/8/1879] (Mu—1581); Herb. Zuccarini s.n. (Mu—386); Janka 1853 (Mu), s.n. (Mu); Kovács 460 (Mu—4329). GREECE: Guicciardi s.n. [in m. Parnassi reg. 1855] (Mu); Herb. Zuccarini s.n. (Mu). MOROCCO: Rauh 156 (Mu), 603 (Mu). LIBYA: Laing s.n. [ad Tibisium rara] (Mu—387). EGYPT: Fischer s.n. [Aegyptus] (Mu—1269); Sieber s.n. (Mu—382). SUDAN: Nubia: Kotschy 323 (Mu—383, Mu—1580). IRAQ: Kotschy s.n. [pr. Mossul, D. 8 Sept. 1841] (Mu—385). CULTIVATED: Germany: Herb. Zuccarini s.n. [Hort. bot. Erlangensis circa 1819] (Mu—390). LOCALITY OF COLLECTION UNDETERMINED: Herb. Schmiedelian s.n. (Mu—378); Herb. Schreber s.n. (Mu—379, Mu—380); Schrank s.n. (Mu—381).

VERBENA SUPINA f. ERECTA Moldenke

Additional bibliography: Moldenke, *Phytologia* 28: 362, 392, 393, & 441 (1974), 34: 268 (1976), and 36: 36, 40, & 277. 1977.

Weber encountered this plant on sand dunes.

Additional citations: AUSTRALIA: South Australia: J. Z. Weber 2294 (Ac).

VERBENA TAMPENSIS Nash

Additional bibliography: M. F. Baker, Fla. Wild Fls., ed. 2, . imp. 1, 188. 1938; Ayensu, Rep. Endang. & Threat. Pl. Spp. 67 & 126. 1974; Moldenke, Phytologia 28: 393—394, 451, & 465. 1974; M. F. Baker, Fla. Wild Fls., ed. 2, imp. 2, 188. 1976; Fleming, Genelle, & Long, Wild Fls. Fla. 15 & 67. 1976; Lakela, Long, Fleming, & Genelle, Pl. Tampa Bay, ed. 3 [Bot. Lab. Univ. S. Fla. Contrib. 73:] 116 & 182. 1976; Long & Lakela, Fl. Trop. Fla., ed. 2, 741 & 961. 1976; Moldenke, Phytologia 36: 141 & 142. 1977.

Illustrations: Fleming, Genelle, & Long, Wild Fls. Fla. 67 (in color). 1976.

Ayensu (1974) lists V. tampensis as one of the endangered or threatened species of plants in the United States which need conservation measures to ensure their survival. Lakela and her associates (1976) assert that in the Tampa Bay [Florida] area it grows in "hammocks, low ground, [and] coastal areas", flowering in spring and fall. Fleming and his associates (1976) record "vervain" as a common name for it.

The J. A. Churchill s.n. [12 March 1956], distributed as V. tampensis, actually is V. maritima Small.

Additional citations: FLORIDA: Brevard Co.: Curtiss 1963 in part (Mu—1544).

VERBENA TENERA Spreng.

Additional & emended bibliography: Buek, Gen. Spec. Syn. Candoll. 3: 496. 1858; Voss in Vilm., Fl. Pleine Terr., ed. 1, 937 (1865), ed. 2, 2: 975 (1866), ed. 3, 1: 1198 (1870), and ed. 4, 1066. 1894; Bolkh., Grif, Matvej., & Zakhar., Chrom. Numb. Flow. Pl., imp. 1, 717. 1969; Williamson, Sunset West. Gard. Book, imp. 11, 437. 1973; Bolkh., Grif, Matvej., & Zakhar., Chrom. Numb. Flow. Pl., imp. 2, 717. 1974; Kooiman, Act. Bot. Neerl. 24: 464. 1975; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 15: 89 & 94. 1975; Moldenke, Phytologia 30: 150, 152, 153, 166, & 171—172 (1975), 31: 412 (1975), and 36: 151. 1977.

López-Palacios (1975) comments that "La V. tenera en Venezuela aún no está muy difundida y hasta la fecha sólo existe una colección mía: (López-Palacios 2565 bis)". Araujo describes it as a heliophilous herb very common along roadsides in Rio Grande do Sul, Brazil, and refers to the flowers [corollas] as "red".

The Princess Therese of Bavaria 282, distributed as V. tenera, actually is V. microphylla H.B.K., while Hieronimus s.n. [14/XI/1876] & s.n. [Montevideo], Kummer s.n. [Hort. Monac. 16.VIII. 1849], and Meebold 12838, 26825, & 27318 are V. tenuisecta Briq.

Additional citations: BRAZIL: Rio Grande do Sul: Araujo 1256 [Herb. FEEMA 12264] (Pf).

VERBENA TENERA var. MAONETTI Regel

Additional bibliography: Vilm., Fl. Pleine Terr., ed. 1, 938 (1865), ed. 2, 2: 975 (1866), ed. 3, 1: 1198—1199 (1870), and ed. 4, 1066. 1894; Williamson, Sunset West. Gard. Book, imp. 11, 437.

1973; Moldenke, *Phytologia* 30: 172 (1975) and 31: 412. 1975.

Additional illustrations: Voss in Vilm., *Fl. Pleine Terr.*, ed. 4, 1066. 1894.

Vilmorin (1863) describes this variety as having "Fleurs d'un rose purpurin, à lobes alternativement marqués de raies blanches disposées en étoile.....La variété Mahoneti, introduit depuis quelques années seulement dans les jardines, est remarquable par ses nombreuses fleurs étoilées de blanc, d'un très joli effet; elle paraît plus rustique et résiste mieux à la sécheresse que l'espèce; aussi sa culture se généralise-t-elle de plus en plus. On en forme des tapis d'une très grande élégance et de très jolies potées. Il en existe aujourd'hui plusieurs sous-variétés obtenues récemment de semis.....La variété Mahoneti et les sous-variétés qui en sont issues produisent fort peu de graines, aussi les multiplie-t-on d'ordinaire de boutures, faites à l'autome en terrines et hivernées sous châssis, ou bien au printemps sur couche avec des rameaux pris sur des pieds conservés sous verre pendant l'hiver."

VERBENA TENUISECTA Briq.

Additional synonymy: Glandularia tenuisecta (Spreng.) López-Palacios, *Revist. Fac. Farm. Univ. Los Andes* 15: 89. 1975.

Verbena utenisecta Briq. ex Molina R., *Ceiba* 19: 96, sphalm. 1975.

Verbena tenuisectum McReynolds ex Moldenke, *Phytologia* 34: 279, in syn. 1976.

Additional & emended bibliography: M. F. Baker, *Fla. Wild Fls.*, ed. 2, imp. 1, 188. 1938; A. W. Anderson, *How We Got Fls.*, imp. 1, 168 & 283 (1951) and imp. 2, 168 & 283. 1966; Ewan in Thieret, *Southwest. La. Journ.* 7: 11. 1967; G. W. Thomas, *Tex. Pl. Ecolog. Summ.* 78. 1969; Bolkh., Grif, Matvej., & Zakhar., *Chrom. Numb. Flow. Pl.*, imp. 1, 717 (1969) and imp. 2, 717. 1974; S. B. Jones, *Castanea* 39: 137. 1974; Duncan & Foote, *Wildfls. SE. U. S.* 150, [151], & 295. 1975; Kooiman, *Act. Bot. Neerl.* 24: 464. 1975; López-Palacios, *Revist. Fac. Farm. Univ. Los Andes* 15: 89 & 93--94. 1975; Molina R., *Ceiba* 19: 96. 1975; Moldenke, *Phytologia* 30: 172--173 (1975), 31: 374--376, 392, & 398 (1975), and 34: 250, 252, 260, 270, & 279. 1976; M. F. Baker, *Fla. Wild Fls.*, ed. 2, imp. 2, 188. 1976; Fleming, Genelle, & Long, *Wild Fls. Fla.* 82. 1976; F. R. Fosberg, *Rhodora* 38: 113. 1976; Lakela, Long, Fleming, & Genelle, *Pl. Tampa Bay*, ed. 3 [Bot. Lab. Univ. S. Fla. Contrib. 73:] 116, 168, & 182. 1976; Long & Lakela, *Fl. Trop. Fla.*, ed. 2, 741 & 961. 1976; Soukup, *Biota* 11: 19. 1976; E. H. Walker, *Fl. Okin. & South. Ryuk.* 884. 1976; A. L. Moldenke, *Phytologia* 36: 87 & 88. 1977; Moldenke, *Phytologia* 36: 29, 40, 126, 128, 131, 140, 141, 164, 216, 231, 288, & 291. 1977.

Additional illustrations: Duncan & Foote, *Wildfls. SE. U. S.* [151] (in color). 1975; Fleming, Genelle, & Long, *Wild Fls. Fla.* 8 [as "canadensis"] (in color). 1976.

Molina (1975) records this species as cultivated in Honduras, while Fosberg (1976) found it in gardens on St. Croix. Ryscroft reports it "fairly common in patches along roadsides in Natal. Bay--

liss refers to it as semiprostrate on sandy roadsides, "introduced, now widespread", at 2000 feet altitude, in the Cape Province of South Africa, misidentifying it as V. bonariensis L. Thomas found it growing in sandy pinewoods in Louisiana. Lakela and her associates (1976) aver that in the Tampa Bay [Florida] area it inhabits "sandhills, lawns, [and] berms", flowering all year; they call it the "moss verbena" and mistakenly accredit the scientific name to "Briz."

The corollas on Ryscroft 2574 are said to have been "mauve" in color when fresh.

Recent collectors refer to V. tenuisecta as a plant "with no distinctive odor" and have encountered it on pine hills, along roadsides at the edges of swamps, and in "sandy soil on neutral ground with common grasses predominant". Hester says that it is scarce in dry soil in Louisiana, but Brown, in the same state, refers to it as a "weed in vacant lots", a "common weed in longleaf pineland", and "very abundant on prairie area roadsides". He notes that the anthers are appendaged (which is to be expected since the species is a member of the section Glandularia). Moore reports it "very frequent in dry sandy soil".

The corollas are said to have been "violet" in color on Schinini 11600 and Schinini & Martinez Croveto 12753, "purple" on B. Moore s.n., "dark-purple" on Jenevein s.n. and Killmer 25, "blue" on C. M. Allen 453, "pink, but many pure white clumps" on Bougere 2235, and "lavender-purple" on Webster & Wilbur 3282.

The Moldenke & Moldenke 26437, 26580, 26690, & 26724 specimens cited below are transfers from the L. H. Bailey Hortorium herbarium. Hatschbach 23884 was previously erroneously cited as V. aristigera S. Moore.

Material of V. tenuisecta has been misidentified and distributed in some herbaria as V. elegans H.B.K.

Additional & amended citations: NORTH CAROLINA: Cumberland Co.: Moldenke & Moldenke 30000 (Ac). Harnett Co.: Moldenke & Moldenke 30002 (Tu). Johnston Co.: Moldenke & Moldenke 30004 (Ld). Robeson Co.: Moldenke & Moldenke 29991 (Gz). SOUTH CAROLINA: Allendale Co.: Moldenke & Moldenke 29960 (Ld). Bamber Co.: Moldenke & Moldenke 29964 (Ld). Clarendon Co.: Moldenke & Moldenke 29973 (Kh). Dillon Co.: Moldenke & Moldenke 29990 (Ac). Florence Co.: Moldenke & Moldenke 29982 (Gz), 29985 (Tu). Orangeburg Co.: Moldenke & Moldenke 29969 (Ld). GEORGIA: Bryan Co.: Moldenke & Moldenke 29942 (Tu). Bulloch Co.: Moldenke & Moldenke 29947 (Ld). Camden Co.: Moldenke & Moldenke 29872 (Gz). Clinch Co.: Spindler 170 (Lv). Dougherty Co.: Moldenke & Moldenke 29362 (Ld). Glynn Co.: Moldenke & Moldenke 29876 (Tu). Grady Co.: Moldenke & Moldenke 29365 (Gz). Lee Co.: Moldenke & Moldenke 29344 (Kh), 29350 (Gz). Marion Co.: Moldenke & Moldenke 29324 (Ac). McIntosh Co.: Moldenke & Moldenke 29907 (Gz). Mitchell Co.: Moldenke & Moldenke 29364 (Ac). Schley Co.: Moldenke & Moldenke

29329 (Gz). Screven Co.: Moldenke & Moldenke 29951 (Ac). Sumter Co.: Moldenke & Moldenke 29338 (Tu). Talbot Co.: Moldenke & Moldenke 29318 (Ld). Jekyll Island: Moldenke & Moldenke 29880 (Ld), 29890 (Ac). FLORIDA: Bay Co.: Moldenke & Moldenke 26690 (Gz). Dixie Co.: Moldenke & Moldenke 29437 (Tu). Duval Co.: Moldenke & Moldenke 26437 (Ln, Ws). Lafayette Co.: Moldenke & Moldenke 26580 (Ws). Levy Co.: Moldenke & Moldenke 29440 (Kh). Madison Co.: B. Moore s.n. [8 Apr. 1961] (N). Taylor Co.: Moldenke & Moldenke 29423 (Ac). Wakulla Co.: Moldenke & Moldenke 29388 (Ld). ALABAMA: Baldwin Co.: Moldenke & Moldenke 26724 (Sl). MISSISSIPPI: Harrison Co.: Jenevein s.n. [13 Oct. 1973] (Lv). Lincoln Co.: Webster & Wilbur 3282 (Mi). Pearl River Co.: J. A. Churchill s.n. [10 May 1955] (Ln--204152). LOUISIANA: Acadia Par.: Killmer 25 (Lv). Beauregard Par.: Hester 517 (Lv). Bossier Par.: Robinette 148 (Lv). Jefferson Davis Par.: C. A. Brown 17829 (Lv). Ouachita Par.: R. D. Thomas 3912 (Kl--11437). Rapides Par.: C. A. Brown 17094 (Lv). Saint Helena Par.: C. M. Allen 453 (Lv). Saint Tammany Par.: Bougere 2235 (Lv). Vernon Par.: Hester 442 (Lv). Washington Par.: C. A. Brown 5636 (Lv), 17749 (Lv), 18408 (Lv). TEXAS: Jefferson Co.: C. A. Brown 18806 (Lv). Orange Co.: McReynolds 750353 (Lv). CALIFORNIA: Los Angeles Co.: Mesbold 26825 (Mu), 27319 (Mu). BRAZIL: Mato Grosso: Hatschbach 23884 (W--2705822). BOLIVIA: Sucre: Zöllner 8098 (Gz). URUGUAY: Hieronymus s.n. [Montevideo] (Mu). ARGENTINA: Córdoba: Hieronymus s.n. [14.XI.1876] (Mu). Corrientes: Schinini 11600 (Ld); Schinini & Martinez Crovetto 12753 (Ld). Misiones: Montes 14663 (N). GERMANY: Brixle s.n. [Herb. Merxmüller 14336] (Mu). SOUTH AFRICA: Cape Province: Bayliss BS.7344 (Mu); Ryscroft 2626 (Mu). Natal: Mesbold 12838 (Mu); Ryscroft 2574 (Mu). CULTIVATED: France: Herb. Kummer s.n. [h. Paris.] (Mu--1272). Germany: Herb. Hort. Monac. s.n. (Mu); Herb. Schwaegrichen s.n. [Hort. Lips.] (Mu--1251); Herb. Zuccarini s.n. [h. Monac. 1836] (Mu--392); Hiendlmayr s.n. [Hort. Lipsiensis] (Mu--1271); Kummer s.n. [Hort. Monac. 16.VIII.1849] (Mu--391); Kupper s.n. [cult. h.b.M.] (Mu).

VERBENA TENUISECTA f. ALBA (Benary) Moldenke, Phytologia 36: 164. 1977.

Additional bibliography: Duncan & Foote, Wildfls. SE. U. S. 150 & [151]. 1975; Moldenke, Phytologia 30: 173 (1975), 31: 374--376 (1975), 34: 250 (1976), and 36: 128. 1977.

Additional illustrations: Duncan & Foote, Wildfls. SE. U. S. [151] (in color). 1975.

In line with current thinking in taxonomic circles, the status of this taxon, a mere color form, is reduced from the varietal rank under which I have hitherto considered it to form rank.

Bougere has misidentified this plant as V. bipinnatifida Nutt.

and notes that the corollas were "white when fresh, but press lavender"; his no. 2235, cited herein under typical V. tenuisecta. may represent a mixture because its label states "flowers pink, but many pure white clumps", collected in Saint Tammany Parish, Louisiana.

Additional citations: SOUTH CAROLINA: Clarendon Co.: Moldenke & Moldenke 29979 (Ac, Gz, Kh, Ld). GEORGIA: Grady Co.: Moldenke & Moldenke 29369 (Gz). Lee Co.: Moldenke & Moldenke 29357 (Ld, Tu). Marion Co.: Moldenke & Moldenke 29328 (Ac). FLORIDA: Dixie Co.: Moldenke & Moldenke 29438 (Tu). LOUISIANA: Saint Tammany Par.: Bougere 1996 (Lv).

VERBENA TENUISECTA f. RUBELLA Moldenke

Additional bibliography: Moldenke, *Phytologia* 24: 239 & 241. 1972.

Bougere 2235, cited herein under typical V. tenuisecta Briq., may actually represent this form because its accompanying label says "flowers pink".

VERBENA TESSMANNII Moldenke

Additional bibliography: Moldenke, *Phytologia* 24: 241. 1972; Soukup, *Biota* 11: 19. 1976.

VERBENA TEUCRIIFOLIA Mart. & Gal.

Additional & emended bibliography: Schau. in A. DC., *Prodr.* 11: 553--555. 1847; Buek, *Gen. Spec. Syn. Candoll.* 3: 494 & 496. 1858; Bolkh., Grif, Matvej., & Zakhar., *Chrom. Numb. Flow. Pl.*, imp. 1, 717 (1969) and imp. 2, 717. 1974; Moldenke, *Phytologia* 28: 398--399 & 432. 1974; Hinton & Rzedowski, *Anal. Esc. Nac. Cienc. Biol.* 21: 111. 1975; Moldenke, *Phytologia* 36: 149. 1977.

Additional citations: MEXICO: México: Pringle 4180 (Mu--1778). Nuevo León: Beaman 2667 (Ln--170700), 4460 (Ln--171523). San Luis Potosí: Schaffner s.n. [San Luis Potosí, 1875-79] (Mu--1562). Veracruz: Dodds 99 (Ln--199254); Troll 129 (Mu).

VERBENA TEUCRIIFOLIA var. COROLLULATA Perry

Additional bibliography: Moldenke, *Phytologia* 28: 398--399 & 432. 1974.

VERBENA THYMOIDES Cham.

Additional bibliography: Buek, *Gen. Spec. Syn. Candoll.* 3: 496. 1858; Moldenke, *Phytologia* 28: 399. 1974.

Lindeman reports finding this plant along roadsides and the corollas on his no. ICN.20891 are said by him to have been "blue" when fresh, while those on Valls & al. 2127 were "red".

Additional citations: BRAZIL: Rio Grande do Sul: Lindeman ICN. 20891 (Ut--320463); Valls & al. 2127 [Herb. ICN.10131] (Ut--320462). State undetermined: Sellow s.n. [Brasilia] (Mu--397--cotype).

VERBENA TOWNSENDII Svenson

Additional synonymy: Verbena townsendii Svenson ex Balgooy, Pacif. Pl. Areas 3: 245, sphalm. 1975.

Additional bibliography: Moldenke, Phytologia 24: 243. 1972; Balgooy, Pacif. Pl. Areas 3: 245. 1975; Moldenke, Phytologia 36: 302. 1977; Van der Werff, Bot. Notiser 130: 96. 1977.

Van der Werff (1977) reduces V. galapagosensis Moldenke, V. stewartii Moldenke, and V. glabrata var. temuispicata Moldenke to synonymy under what he refers to as a very variable V. townsendii, citing his nos. 1172, 1192, 1218, 1897, 2124, 2152, 2280, & 2286 as well as Adersen 486, 512, 543, 572, 913, 920, 944, 969, 1148, & 1189, Hendrix s.n., Howell 9007, Stewart 3317, 3318, 3319, & 3320, and Vagvolgri s.n.

VERBENA TRIFIDA H.B.K.

Additional bibliography: G. Don in Loud., Hort. Brit., ed. 1, 247 (1830) and ed. 2, 247. 1832; Loud., Hort. Brit., ed. 2, 552. 1832; G. Don in Loud., Hort. Brit., ed. 3, 247. 1839; Sweet, Hort. Brit., ed. 3, 553. 1839; Buek, Gen. Spec. Syn. Candoll. 3: 496. 1858; Moldenke, Phytologia 28: 399. 1974; Soukup, Biota 11: 19. 1976.

Duque-Jaramillo describes this plant as a subshrub, 70 cm. tall, with the corollas "blanco-rosadas", and found it growing at 2625 m. altitude.

Don (1830) calls this the "trifid vervain" and claims that it was introduced into cultivation in English gardens from Mexico in 1818.

Additional citations: COLOMBIA: Cundinamarca: Duque-Jaramillo 2667 (N).

xVERBENA TRINITENSIS Moldenke

Additional bibliography: Moldenke, Phytologia 24: 237 & 244. 1972.

VERBENA TRISTACHYA Troncoso & Burkart

Additional & emended bibliography: Bolkh., Grif, Matvej., & Zakhar., Chrom. Numb. Flow. Pl., imp. 1, 715 (1969) and imp. 2, 715. 1974; Moldenke, Phytologia 30: 173. 1975.

VERBENA TUMIDULA Perry

Additional bibliography: G. W. Thomas, Tex. Pl. Ecolog. Summ. 78. 1969; Moldenke, Phytologia 28: 399. 1974.

Chiang and his associates encountered this rare plant in "calcareous soil of izotal or encinar (almost chaparral) on steep limestone slopes and canyons", associated with Yucca carnerosana, Dasyllirion, Nolina, and Quercus spp., at 1750--1775 m. altitude, flowering and fruiting in September.

Additional citations: MEXICO: Coahuila: Chiang C., Wendt, & Johnston 9223b (Id).

VERBENA URTICIFOLIA L.

Additional & emended bibliography: L., Hort. Cliff., imp. 1, 11. 1737; R. A. Salisb., Prodr. 71. 1796; Stokes, Bot. Mat. Med. 1: 40.

1812; Sweet, Hort. Brit., ed. 1, 1: 325. 1826; G. Don in Loud., Hort. Brit., ed. 1, 246 (1830) and ed. 2, 246. 1832; Loud., Hort. Brit., ed. 2, 552. 1832; G. Don in Loud., Hort. Brit., ed. 3, 246. 1839; Sweet, Hort. Brit., ed. 3, 553. 1839; Buek, Gen. Spec. Syn. Candoll. 3: 494 & 496. 1858; Paine, Ann. Rep. Univ. N. Y. 18: [Pl. Oneida Co.] 109. 1865; Kuntze, Rev. Gen. Pl. 2: 510. 1891; Conard, Pl. Iowa 44. 1951; E. R. Spencer, Just Weeds, ed. 2, xii, 199--201, & 332, fig. 64. 1957; R. A. Davidson, State Univ. Iowa Stud. Nat. Hist. 20 (2): 77. 1959; Hall & Thompson, Cranbrook Inst. Sci. Bull. 39: 74. 1959; Cooperrider, State Univ. Iowa Stud. Nat. Hist. 20 (5): 70. 1962; L., Hort. Cliff., imp. 2, 11. 1968; E. R. Spencer, All About Weeds xii, 199--201, & 332, fig. 64. 1968; Barker, Univ. Kans. Sci. Bull. 48: 571. 1969; Bolkh., Grif, Matvej., & Zakhar., Chrom. Numb. Flow. Pl., imp. 1, 717. 1969; G. W. Thomas, Tex. Pl. Ecolog. Summ. 78. 1969; Hathaway & Ramsey, Castanea 38: 77. 1973; Bolkh., Grif, Matvej., & Zakhar., Chrom. Numb. Flow. Pl., imp. 2, 717. 1974; E. T. Browne, Castanea 39: 183. 1974; R. D. Gibbs, Chemotax. Flow. Pl. 3: 1753--1755 (1974) and 4: 2295. 1974; S. B. Jones, Castanea 39: 137. 1974; León & Alain, Fl. Cuba, imp. 2, 2: 281. 1974; Rousseau, Géogr. Florist. Qué. [Trav. Doc. Cent. Étud. Nord 7:] 377, 467, 479, 504, 516, 644, & 788, map 829. 1974; Van Saun & Kemp, Bull. Torrey Bot. Club 101: 371. 1974; [Bard], Bull. Torrey Bot. Club 102: 431. 1975; D. S. & H. B. Correll, Aquat. & Wetland Pl. SW. U. S., imp. 2, 2: 1396, 1399, & 1775. 1975; Hocking, Excerpt. Bot. A.26: 6. 1975; Kooiman, Act. Bot. Neerl. 24: 464. 1975; A. L. Moldenke, Phytologia 32: 375. 1975; Perkins, Estes, & Thorp, Bull. Torrey Bot. Club 102: 194--198. 1975; H. D. Wils., Vasc. Pl. Holmes Co. Cat. 54. 1975; Moldenke, Phytologia 30: 146, 168, 169, & 173--178 (1975), 31: 412 (1975), and 34: 247, 249, & 250. 1976; Anon., Biol. Abstr. 61: AC1.732. 1976; Van Bruggen, Vasc. Pl. S. Dak. 369, 536, & 537. 1976; [Voss], Mich. Bot. 15: 237. 1976; Ziegler & Sohmer, Contrib. Herb. Univ. Wisc. LaCrosse 13: 16. 1976; Greller, Bull. Torrey Bot. Club 104: 176. 1977; Moldenke, Phytologia 36: 28, 29, 36, 134, 135, 217, 221, 228, 229, 297, & 303--306. 1977; F. H. Montgomery, Seeds & Fruits 202, fig. 3, & 230. 1977.

Additional illustrations: E. R. Spencer, Just Weeds [200], fig. 64. 1957; E. R. Spencer, All About Weeds [200], fig. 64. 1968; F. H. Montgomery, Seeds & Fruits 202, fig. 3. 1977.

Don (1830) calls this species the "nettle-leaved vervain" and says that it was introduced into cultivation in English gardens from North America in 1683, while what he calls V. diffusa, the "diffuse vervain", was introduced from North America in 1818.

Wilson (1975) encountered V. urticifolia in alluvial woods and low fields in Ohio. Hathaway & Ramsey (1973) found it in Pittsylvania County, Virginia, and Browne (1974) in Stone County, Arkansas. Spencer (1957, 1968) avers that the species is native to "Tropical America", but this is erroneous: it is a purely east-temperate North American plant. Tans reports it "common in heavily grazed pastures in sunny sites on upland soil" and growing with Cirsium canadense, C. vulgare, Ambrosia trifida, and A. artemisiifolia.

folia in Wisconsin. Davidson (1959) declares that in Iowa it occurs "Usually in alluvial thickets and open places; frequent", while Cooperrider (1962) refers to it as "Common. Alluvial thickets and woods; roadside thickets". In Kansas Barker (1969) reports it as "Common, in floodplain woods and on wooded slopes...throughout the area". Merxmüller found it "verwildert" in Germany.

Other recent collectors refer to this plant as "upright, with small white flowers" and have encountered it in shaded waste places, swamps, ditches in open pastures, and open fields, in sandy soil, along roadsides, in open areas around fields, in open grassy sandy soil along rivers, and in "low semi-wet spots in Pinus taeda forests", associated with Rubus, Ambrosia, Cassia, and Sesbania. Claycomb avers that it is "rare" in Lafayette Parish, Louisiana, but in other parts of that state Allen records it as "locally frequent in open areas associated with Polygonum" and Wurzlów says "common in waste places and roadsides".

The corollas are said to have been "white", as usual, on C. A. Allen 1161, C. A. Brown 3893, Curry, Martin, & Allen 305 & 390, and H. R. Wilson 302.

Gibbs (1974) reports cyanogenesis and leucoanthocyanin absent from the leaves of V. urticifolia, syringin absent from the stems, and the Ehrlich test giving negative results in the leaves.

Perkins and his associates (1975) report that V. urticifolia is highly autogamous, nectar is present in the flowers but not in sufficient quantity for measurement, "Wilting of the persistent corolla.....brings the pollen into contact with the stigma, as evidenced by pollen tube growth on stigmas of bagged inflorescences", the corollas are the smallest (2 mm.) of the 4 species studied. "Verbena urticifolia produces relatively taller plants (45--135 cm.) and an inflorescence pattern similar to V. halei, but because it has more branches (5--144, mean = 40.4), and the distance between the flowers is only about 2.1 mm, the inflorescences appear denser!" They found the following insects visiting the flowers: Diptera: Allograpta sp., Baccha sp. (with Verbena pollen on head), Dolichopodidae sp., Paragus sp., Systropus sp. (with pollen on head), Hymenoptera: Dialictus sp. (with pollen on head), Sphecodes sp., and Lepidoptera: Leptotes marinus. They found 4 plants with 6219 potential seeds had a 66.5 percent seed-set when insect-visited, while 8 bagged plants, with 10,653 potential seeds, had a 47.3 percent seed-set.

Montgomery (1977) describes the seeds as "Nutlets 1.8 x 0.7 x 0.6 mm, rounded dorsal surface obscurely veined and finely reticulate".

Material has been misidentified and distributed in some herbaria as V. scabra Vahl. On the other hand, the J. A. Churchill s.n. and Tans 1454-3, distributed as V. urticifolia, actually represent its var. leiocarpa Perry & Fernald, M. F. Spencer 994 is V. lasiostachys Link, Robinette 203 is V. halei Small, and C. A. Brown 4084a, Eggers 996, Lindheimer 1077, Sinten 767, Stam 60, and Thomas & al. 10859

are V. scabra Vahl.

Additional citations: NEW JERSEY: Union Co.: Moldenke & Moldenke 30154 (W). PENNSYLVANIA: Dauphin Co.: Moldenke & Moldenke 31156 (Ut). Northampton Co.: Herb. Schreber s.n. [Bethlehem] (Mu--403), s.n. [Nazareth, 1787] (Mu--402). Schuylkill Co.: Moldenke & Moldenke 31160 (Ac, Ld, Mu). County undetermined: Herb. Zuccarini s.n. [e Pennsylvania] (Mu--407). VIRGINIA: Nelson Co.: Freer, Ramsey, & Ramsey 17334 (Lc). MISSISSIPPI: County undetermined: Herb. Kummer s.n. [Mississippi] (Mu--1270). OHIO: Hamilton Co.: Frank s.n. [1837] (Mu). ILLINOIS: Adams Co.: Purpus 132 (Mu--4291). INDIANA: Marion Co.: Frazee s.n. [July 8, 1885] (Lc). Tippecanoe Co.: Bresinsky s.n. [2.9.1967] (Mu). MICHIGAN: Ingham Co.: Flanders 110 (Ln--226391); W. D. Stevens 1599 (Ln--237018). Wayne Co.: G. Stewart s.n. [Aug. 1898] (Ln--142429). WISCONSIN: Dane Co.: Tans 1478-20 (Ts). Jefferson Co.: Tans 1475-1 (Ts). MISSOURI: Marion Co.: J. Davis s.n. [25-7-18] (Mu). Pulaski Co.: Meebold 25489 (Mu). Saint Louis: Goehring 427 (Lv); Mühlenbeck 1293 (Mu). County undetermined: Martens s.n. (Mu). LOUISIANA: Bossier Par.: Correll & Correll 10057 (Lv). East Baton Rouge Par.: C. A. Brown 1071 (Lv); Hunt 6 (Lv). Lafayette Par.: Claycomb s.n. [June 25, 1942] (Lv). Lincoln Par.: J. A. Moore 5370 (Lv). Pointe Coupee Par.: C. A. Brown 3893 (Lv); M. Chaney 42 (Lv). Saint Helena Par.: C. M. Allen 349 (Lv), 1161 (Lv); Kirkpatrick 16 (Lv). Saint Tammany Par.: Arsène 11083 (Lv), 12069 (Lv). Tangipahoa Par.: H. R. Wilson 302 (Lv), 419 (Lv). Terrebonne Par.: Arceneaux 383 (Lv); Wurzelow s.n. [June 12, 1912] (Lv, Lv). West Feliciana Par.: Curry, Martin, & Allen 305 (Lv), 390 (Lv). GERMANY: Merxmüller 14338 (Mu). CULTIVATED: Germany: Herb. Hort. Monac. s.n. [20.IX.04] (Mu); Herb. Zuccarini s.n. [Hort. Bot. Monac.] (Mu--408, Mu--410); Prince Paul of Wurtemberg s.n. [Hort. Mergentheim 1840] (Mu--1586). LOCALITY OF COLLECTION UNDETERMINED: Herb. Mus. Bot. Landshuth s.n. (Mu--400); Herb. Reg. Monac s.n. (Mu--398); Herb. Schreber 279 [e Carolina] (Mu--401), s.n. [ex America boreali] (Mu--404), s.n. (Mu--405); Herb. Schmiedel-ian s.n. (Mu--400); Herb. Zuccarini s.n. (Mu--409); Hiendlmayr s.n. (Mu--1274); Hooker s.n. [Un. States] (Mu--414); Prince Paul of Wurtemberg s.n. [Verein. St. 1832] (Mu--1585).

VERBENA URTICIFOLIA var. LEIOCARPA Perry & Fernald

Additional bibliography: Hall & Thompson, Cranbrook Inst. Sci. Bull. 39: 74. 1959; G. W. Thomas, Tex. Pl. Ecolog. Summ. 78. 1969; D. S. & H. B. Correll, Aquat. & Wetland Pl. SW. U. S., imp. 2, 2: 1396, 1399, & 175. 1975; Moldenke, Phytologia 30: 176 & 177 (1975), 34: 247 (1976), and 36: 29 & 297. 1977.

Tans found this variety "common in heavily grazed pastures on nearly level upland ground", growing in association with Carduus nutans, Verbena stricta, V. hastata, and Verbascum thapsus, in Wis-

consin, flowering as early as May, the corollas white. Churchill encountered it in pastures and on shaley lake shores. Hall & Thompson (1959) report it from Oakland County, Michigan, where it grows "In open woods, along roadsides, and in meadows. Occasional."

Additional citations: NEW YORK: Schuyler Co.: J. A. Churchill s.n. [23 August 1937] (Ln—203427). NEW JERSEY: Union Co.: Moldenke & Moldenke 30953 (Ac, Ld, Tu). VIRGINIA: Surrey Co.: J. A. Churchill s.n. [22 August 1970] (Ln—230920). WISCONSIN: Walworth Co.: Hansen & Tans 1422 (Ts); Tans 1454-3 (Ts). MISSOURI: Shannon Co.: Meebold 25328 (Mu). LOCALITY OF COLLECTION UNDETERMINED: Herb. Schmiedelian s.n. [America borealis] (Mu—399).

VERBENA VALERIANOIDES H.B.K.

Additional bibliography: Buek, Gen. Spec. Syn. Candoll. 3: 496. 1858; Robledo, Bot. Med. 392. 1924; Moldenke, Phytologia 30: 178. 1975; López-Palacios, Revist. Fac. Farm. Univ. Los Andes 17: 50. 1976.

Robledo (1924) records the popular name, "verbena", for this plant. López-Palacios refers to it as "hierba de unos 60—80 cms. Hojas mas o menos lineales. Cabezuelas reducidas y congestas" and found it growing at 2650 m. altitude, flowering in August. He is of the opinion that his no. 3639 represents a natural hybrid with V. litoralis H.B.K. because the "Hojas basales con las de V. litoralis y las superiores como las de V. valerianoides; cabezuelas como las de ésta última." In a letter to me, dated January 16, 1976, he says "3639 queda definitivamente en Verbena valerianoides HBK. Habrá que completar la descripción de HBK haciendo notar la variación de las hojas inferiores según sus observaciones. No vale la pena hacer una separación, ni siquiera de forma." In his 1976 publication he says: "Schauer la separa de la V. litoralis por sus hojas enteras y lineales, y de esa manera la describe Bonpland; pero ello no es absolutamente cierto. encontrándose algunas hojas basales anchas y de borde dentado, muy similares de las de V. litoralis; López-Palacios 3639 (COL), Bogotá."

Additional citations: COLOMBIA: Cundinamarca: López-Palacios 3637 (N, Z), 3639 (N, Z).

VERBENA VARIABILIS Moldenke

Additional bibliography: Moldenke, Phytologia 24: 252. 1972; Soukup, Biota 11: 19. 1976.

VERBENA VILLIFOLIA Hayek

Additional bibliography: Moldenke, Phytologia 24: 252. 1972; Soukup, Biota 11: 19. 1976.

VERBENA VIOLATA Rojas

Additional & emended bibliography: Krapovickas, Bol. Soc. Argent. Bot. 11, Supl. 269. 1970; Moldenke, Phytologia 30: 178 (1975)

and 31: 388. 1975.

VERBENA WEBERBAUERI Hayek

Additional bibliography: Moldenke, *Phytologia* 24: 252—253. 1972; Soukup, *Biota* 11: 19. 1976.

VERBENA WRIGHTII A. Gray

Additional & amended bibliography: G. W. Thomas, *Tex. Pl. Ecology. Summ.* 78. 1969; Bolkh., Grif, Matvej., & Zakhar., *Chrom. Numb. Flow. Pl.*, imp. 1, 717 (1969) and imp. 2, 717. 1974; E. H. Jordan, *Checklist Organ Pipe Natl. Mon.* 7. 1975; Moldenke, *Phytologia* 30: 178—179 (1975), 34: 251 (1976), and 36: 124, 128, 147, & 148. 1977.

The corollas are described as having been "blue" on Sample & Love 321 and these collectors encountered the plant in dry sandy soil near roadsides. On Van Deventer & Van Deventer s.n. [28 March 1976] the corollas are said to have been "light-purple".

Higgins has found V. wrightii in limestone soil of oak-juniper communities and in sandy soil in short-grass prairie communities, as well as in "rocky or gravelly limestone with sotol-Acacia association", while Lehto and his associates encountered it among volcanic rocks. Weber & Livingston found it growing on steep shale hillsides; Sperry refers to it as "frequent" in Pecos County, Texas. Wendt and his associates report it from calcareous gravel "in matorral subdesértico con espinosas laterales y inerme on steep-walled narrow limestone canyons", associated with Acacia berlandieri and Eupatorium solidaginifolium. Stotz found it to be "fairly common in rocky wash lined with Prosopis and Acacia". Thomas (1969) calls it the "Wright verberna".

The Dziekanowski, Dunn, & Bennett 2393 and S. Stephens 75643, distributed as V. wrightii, actually are V. ambrosifolia Rydb., while D. Howe s.n. [1 October 1968] is V. ambrosifolia f. eglandulosa Perry, and Higgins 8790 and L. M. Andrews 259 are V. gooddingii Briq.

Additional citations: COLORADO: Archuleta Co.: Weber & Livingston 6258 (Mi). TEXAS: El Paso Co.: Meebold 24224 (Mu). Hudspeth Co.: Higgins 8552 (N). Pecos Co.: Sample & Love 321 (W—2732739); Sperry 3081 (Sd—70647). NEW MEXICO: Bernalillo Co.: Meebold 22491 (Mu). Dona Ana Co.: Meebold 26694 (Mu). Eddy Co.: Higgins, Higgins, & Higgins 9849 (N). Grant Co.: O. B. Metcalfe 126 (Mu—4104). San Miguel Co.: Higgins 8884 (N). ARIZONA: Apache Co.: Lehto, McGill, Nash, & Pinkava 11566 (W—2734658). Graham Co.: Stotz 16 (N). Santa Cruz Co.: Van Deventer & Van Deventer s.n. [28 March 1976] (Ld). MEXICO: Coahuila: Wendt, Chiang, & Johnston 9279a (Ld).

VERBENA XUTHA Lehm.

Additional synonymy: Verbena xatha Lehm. ex Moldenke, *Phytolo-*

gia 34: 279, in syn. 1976. Verbena virginianum L. ex Moldenke, Phytologia 34: 279, in syn. 1976.

Additional & emended bibliography: Buek, Gen. Spec. Syn. Candoll. 3: 495 & 496. 1858; G. W. Thomas, Tex. Pl. Ecolog. Summ. 78. 1969; Bolkh., Grif, Matvej., & Zakhar., Chrom. Numb. Flow. Pl., imp. 1, 717 (1969) and imp. 2, 717. 1974; Moldenke, Phytologia 30: 179--180 (1975), 34: 250, 251, & 279 (1976), and 36: 29, 124, 277, & 294. 1977.

Recent collectors refer to this plant as upright, with pubescent "flowers" and no fragrance. They have encountered it in sandy soil, fallow fields, open dry roadsides, on the river side of levees, and on "spoils" with Bermuda and Dallas grass. In addition to the months previously reported, it has been collected in fruit in April. Piehl refers to it as infrequent in pastures in Louisiana, where, however, Spindler reports it as a "frequent perennial in vacant lots" and Hester found it plentiful in woods and also plentiful along roadsides. Demaree found it "common in bottoms" at 320 feet altitude in Arkansas.

Thomas (1969) calls this species the "coarse verbena", while Claycomb calls it "blue vervain".

The corollas are said to have been "lavender" on Piehl s.n., "violet" on Schroer 71, "light-purple" on Spindler 71, and "purple" on Curry, Martin, & Allen 594.

The Montz 2485, distributed as V. xutha, actually is xV. alleni Moldenke, while Meebold 27301 is V. canescens H.B.K. and D. E. Ellis 58 is V. halei Small.

Additional citations: MISSOURI: Saint Louis: Prince Paul of Württemberg s.n. [St. Louis, 1832] (Mu--1587). ARKANSAS: Sevier Co.: Demaree 70559 (Ld). LOUISIANA: Assumption Par.: Maisonneaux s.n. [June 1917] (Lv). Cameron Par.: C. A. Brown 9272 (Lv); Schroer 71 (Lv); Spindler 71 (Lv). East Baton Rouge Par.: C. A. Brown 1063 (Lv), 1381 (Lv); T. S. Jones s.n. [May 18th 1899] (Lv); Robertson s.n. [June 5, 1899] (Lv); Simon 688 (Lv). Iberia Par.: Hester 642 (Lv). Lafayette Par.: Claycomb s.n. [July 2, 1942] (Lv). Madison Par.: Piehl s.n. [1 Oct. 1972] (Lv). Natchitoches Par.: Hester 158 (Lv). Pointe Coupee Par.: M. Chaney 402 (Lv, Lv). Red River Par.: Hester 355 (Lv). Saint Martin Par.: Correll & Correll 9447 (Lv); Hester 657 (Lv). Saint Mary Par.: Hester 796 (Lv). Terrebonne Par.: Bynum, Ingram, & Jaynes s.n. [Apr. 22, 1933] (Lv); Wurzlow s.n. [May 18, 1912] (Lv). Choupique Island: Montz 2294 (Lv). Grand Isle: C. A. Brown 1980 (Lv); Cangemi & Andrus 85 (Lv). Turnbull Island: Curry, Martin, & Allen 594 (Lv). TEXAS: Orange Co.: J. A. Churchill s.n. [1 May 1955] (Ln--204156). CULTIVATED: Germany: Prince Paul of Württemberg s.n. [Hort. Mergentheim] (Mu--1588). [to be continued]